January 25.

Rev. Henry C. McCook, D. D., Vice-President, in the chair.

Twenty-one persons present.

The following were elected members; Bernard Persh, Geo. B. Cresson, Joseph Whitehouse, William B. Marshall and William Osler, M. D.

On a Tumor in the Oyster.—Prof. John A. Ryder remarked that a few days since Professor Leidy handed him the soft parts of an oyster, which he said he thought might be an interesting subject for investigation, inasmuch as a very large tumor had grown into the pericardiac cavity. The specimen is a very remarkable one, and seems to be the first of the kind which has fallen under the observation of naturalists; neither Professor Leidy nor the speaker, in the course of large opportunities for observation, having previously encountered anything of the sort. It is also of great interest as proving that such pathological growths may be developed in the mollusca, thus showing that even in the invertebrata there may be morbid proliferations of certain tissues which simulate in certain respects those observed to occur in man and the higher types of vertebrates, in which they become very dangerous and painful in character, as in the case of cancer.

The first and most striking features of this tumor, found in the oyster, is its great size in proportion to that of the animal. The tumor in its largest dimension measures nearly one inch across, with a thickness of fully half an inch. The total length of the animal, in alcohol, is about three inches, and it appears normal in every other respect. For size, in proportion to the dimensions of the animal, it can therefore only be compared to those huge morbid growths on certain parts of man known as elephantiasis. It is subcircular in outline as viewed from the side, and fills up the pericardiac cavity in front of the adductor muscle; this cavity being very greatly enlarged in consequence of the growth of the tumor. The larger portion of it also lies on the right side, and on account of its great size it has displaced the heart forwards and to the left.

Its consistence is soft and yielding when pressed with the finger, and consists of some eighteen very distinct lobules of irregular size and form. Its joint of attachment appears to be to the mass of tissue which surrounds the posterior and rectal part of the intestine of the animal, and appears to have grown out in this region, or from the dorsal wall of the heart chamber.

Upon removing one of the lobules, which was cut into sections, it was found that its histological structure was also very remark-

able, and considerably different from that of the normal tissue of the body-mass of the animal. The sections also showed that the tumor was traversed by vessels, the tissues immediately around which were more nearly of the kind normally found to constitute the greater part of the substance of the body-mass. The normal connective tissue is composed of large cells or spaces with thin walls, and about the centre of each one of these a small, complex mass of protoplasm is found which is suspended to the sides of its vesicular wall by means of fine radiating protoplasmic threads or filaments. Very minute nucleated and rounded blood and lymph cells are also found in the general connective tissue of the body-mass in small numbers.

The histological structure of the tumor contrasts with the normal tissue in the following particulars. We find no evidence of the presence of the central protoplasmic bodies, with radiating processes, in the meshes of the tissue. The mesh of the tissue of the tumor is areolar, or alveolar, the alveoli being much larger than the vesicular cells of the normal connective tissue. While there is a complete absence of the protoplasmic bodies with filaments, the alveoli contain great numbers of very small globular, nucleated cells, somewhat variable in size. These cells closely resemble the colorless blood and lymph cells of the oyster, and some show processes or pseudopods. They are generally adherent to the walls of the alveoli, or project in small adherent clumps from the parietes of the alveoli and never completely fill the meshes of the alveolar tissue, in which they are included, as do the analogous cells in the alveoli of tumors in the higher animals.

Near the centre of each nodule there is a zone of alveoli which are larger, and in which the small rounded cells are most abundant. At the surface of the tumor there is no investment of a truly integumentary character, so that the proliferating mass seems to have ruptured the integument or membrane lining the pericardium. At the surface we therefore find that there is no true integument, but instead, the alveoli become smaller and more compact, with the contained small rounded cells more closely packed. The tissues of the tumor are entirely of mesodermal origin, and are therefore of considerable interest from the standpoint of comparative pathology.

The speaker also referred to the presence of tumors, which developed as outgrowths of the intestinal wall, near the pylorus, in the common shad, and also instanced the occurrence of profound lesions of the Wolffian body or kidney of the common gold-fish, as a result of which that organ underwent complete degeneration, with other changes which caused a bloated, dropsical appearence in the cavity of the abdomen. Large meshes of fibrous tissue were, in fact, found occupying the place of the kidney filled with a watery or colloid substance, the whole taking up a much greater space than that originally filled by the normal organ. These data, the speaker thought, were very significant,

as showing that even the lower animals were not exempt from morbid growths and lesions of the most serious character. Tumors of the kind described in the oyster are probably very rare, however, and the speaker considered that it was very fortunate that the specimen had fallen into the hands of a naturalist, such as Professor Leidy, who could so well appreciate its importance and value. The tumor seems to have been benign in character, as the oyster in other respects appears to have been healthy. It was also localized, and did not appear in other parts of the animal, so that it was probably in no way infectious.

Modification of Habit in Ants through fear of Enemies.—Dr. Henry C. McCook described a raid of the Sanguine ants, *Formica sanguinea*, which occurred in a vacant lot at Asbury Park, N. J. The co-operative nest of the two species was established quite near the sidewalk, and the raid was directed thence into the open lot. The marching column of Sanguines was accompanied by a few individuals of the black slaves. What special purpose the latter had he was not able to determine. The eagerness exhibited by the Sanguines upon the march was very noticeable, although these creatures are always active in the nest and at any domestic labor as well as war, in which respect they differ largely from the shining slave makers, *Polyergus lucidus*.

On the occasion of which he spoke, the nest of Fuscous ants, *Formica fusca*, against which the expedition was directed, was concealed among a large amount of forest rubbish, such as bits of broken chips, twigs, dried leaves, etc., that were scattered over the barren space, interspersed here and there with tufts of grass and low huckleberry bushes. The invaders had evidently located the nest, but not with absolute accuracy; at least they were not able to determine the point at which it might successfully be assaulted. A most animated scene was presented over the entire surface, some three feet in diameter, upon which was concentrated the united energies of the warriors. Over and around this space in various lines the ants wandered, crossing and criss-crossing each other's pathways, sometimes singly, sometimes in couples or triplets, or in larger crowds, but always exhibiting an attitude of fevered eagerness, applying their mandibles and mouth-parts continually to the ground in search of the point of vantage which would give them ingress to the coveted treasures of the Fuscous ants.

A space about ten inches in diameter, strewn with dry chippage seemed to represent the locality beneath which the blacks had established their formicary. The Sanguines energetically pulled away the chips, scattered them here and there, burrowed lightly in the earth hoping to obtain an opening. About two feet distant from this point the speaker discovered a small round entrance or gate which was soon identified as one of the outer approaches to the Fuscous nest, for several of these ants were